

1966

## Grapevine, No. 3, Staff Bulletin, College of Technology, Kevin Street : November 1966

DIT Kevin Street

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### Recommended Citation

DIT Kevin Street : Grapevine, No. 3, Staff Bulletin : November 1966

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COLLEGE OF TECHNOLOGYKEVIN STREETS T A F F      B U L L E T I NEDITORIAL

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At times during the past half-term 'it seemed that Number 3 of the Staff Magazine would never emerge. The invitation to all the staff issued in No 1 for opinions on all topics has not been taken up. Again the Editors remind you that we are eagerly awaiting your opinions - so long as you are prepared to put them in writing. We have not guaranteed to become a monthly production. We can only say that we will go to print as often as you, potential contributors, make it possible. Is there a lesson in the fact that, to our knowledge, one city developing comprehensive school has launched a fortnightly, and so far very successful, staff magazine. From there you can take the point.

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It is a little unseasonable to hearken back to the Summer Vacation. Some exploits of the staff are however worth mentioning. From the mass-media we noted with delight the athletic prowess of Michael Mullet leaping to success in the High Jump Championship of Leinster. This victory was followed up at a later date with a close second in the National Decathlon Championship. "The Grapevine" offers him belated congratulations.

Again from the mass-media (this time BBC Sound Radio) came the disturbing news of Matt Rice's nautical exploits. The story of that experience we hope to carry in a later number. At this time his own comment "For twelve hours we fought mountainous seas, for eight hours we fought for our lives". Place your order now for the next instalment of....

Through "usually reliable sources" came word of wholehearted attempts by the Chemistry Department to



establish very good public relations in Killarney hotels on the happy occasion of Sean O'Donoghue's nuptials. Again from Kerry came word of the Physics Department's own interpretation of how College Teachers should enjoy learning Irish (The Language Laboratory is not known in Ballyferriter but the post midnight classes are really worthwhile!).

Finally was noted a photograph of a group of Irish teachers visiting America which appeared with the U.N. Buildings as background. Included in the photograph was noticed the familiar figure of Frank Brennan. This issue carries his first-hand account of the trip.

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The Editors have pleasure in welcoming to the College Staff as Vice-Principal, George Latchford. Mr. Latchford's professional career is well-known to all of us. In his further capacity of Vice President of Cumann na nGairm Mhuinteoiri we are confident that he will be a powerful force in developing the true position of our College in the educational fabric of the nation.

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Two articles in this issue help to set in perspective some of the significant innovations in the work of the College. In answer to the question posed by a visiting illuminary in May - "What is a Computer?" - Chris Cowley writes a comprehensive account of the theory and application of the Computer over the years. Morgan Sheehy contributes a valuable account of the theory of the Vocational Guidance Scheme within the College. Incidentally, Morgan is fresh from a year-long course of training in Vocational Guidance organised last year by the Vocational Education Committee. In the true tradition of Kevin Street he took first place in the end of course examination.

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## THE DIGITAL COMPUTER

C. V. Cowley

The industrial revolution, which derived from the invention of machines capable of automatically making commodities, was a revolution that vastly enlarged the productive capabilities of man. We are now on the threshold of a new kind of revolution, which derives from the invention of machines that automatically compute and control, and which is vastly increasing man's thinking capabilities of planning, analyzing, computing and controlling. At the centre of this new development is the digital computer which has made possible scientific and industrial advances that were unattainable only two decades ago.

### Historical Development:

The earliest known device developed by man to perform calculations with numbers was the Abacus, originated in the Far East about 600 B.C. The Abacus is simply a wooden frame with beads strung on wire columns, the columns representing units, tens, hundreds, etc. The device is still in use and in the hands of a skilled operator can be as fast and accurate as that of a modern desk calculator.

The next significant contribution to the field of computation came in 1614 with the invention of logarithms by John Napier. This was followed in 1621 by the introduction of the slide rule by William Oughtred of England. In 1642 Blaise Pascal constructed the first desk calculator which used gears with 10 teeth to represent numbers from 0 through 9. This machine was capable of performing the operations of addition and subtraction and was later modified to perform multiplication by repeated addition. Several other machines appeared in the following years but it was not until the early part of the nineteenth century that the most significant contribution was made. This contribution came from Charles Babbage, the Professor of Mathematics at Cambridge from 1828 to 1839, who developed plans for the "analytic Engine" as it was termed. Babbage envisaged a machine that could solve problems, print answers, automatically follow stored instructions and store a thousand numbers of 50 decimal digits each. The machine differed from its predecessors in that it was capable of storing large amounts of information and, if built would have been the first digital computer as distinct from desk calculator. However, due to lack of support from the British Government and the inability of existing machine tools to construct the components with the required precision the machine was never built. Babbage's concepts were in advance of the technology of his time and included many of the features to be found in modern computers. In fact it is only during the last decade that computers with storage capacities of the order of Babbage's machine have become common.



During the early part of the 20th century the Bell Telephone Laboratories produced a special purpose computer utilizing electromagnetic relays and punched cards but the development of electronic computers had its real beginning during World War II with the development of pulse techniques in connection with Radar. The first "all electronic" digital computer, the ENIAC, was completed in 1946 at the University of Pennsylvania for the United States Army. Soon after the close of World War II the leaders in the computing field, i.e. IBM, Burroughs Corporation, N.C.R. and Remington Rand, developed electronic computers for general purposes.

Today the digital computer uses transistors and miniature magnetic elements for compactness, and reliability and compute with speeds and accuracies that far outstrip the capabilities of the human brain.

#### Applications:

Digital Computers are used whenever repetitive calculations or the processing of large amounts of data becomes routine or completely impracticable by pencil and paper methods. To attempt to make a survey of existing applications would be unrealistic and so mention will be made of one or two of the more notable achievements by way of illustration.

Today the conquest of space is rapidly becoming a reality. This is due, in the main, to the development of sophisticated computers which can handle the extremely heavy mathematics required to calculate satellite orbits and the control of motion in space. This problem was originally investigated under the title of the "three body problem" concerned with the motion of three bodies in space under the action of their mutual gravitational attractions. In 1950 the problem was solved on an IBM computer which performed approximately twelve million operations altogether. Since that time many calculations of larger magnitude have been performed on modern computers.

Another interesting application of computers in research is in the field of Molecular Biology. In this study it is required to determine the spatial arrangements of the atoms in a molecule. Crystals of the substance under investigation are irradiated with X rays and photographs of the atomic patterns obtained. The crystallographer must guess a molecular structure, calculate the pattern and compare it with the experimental photographs. This process was repeated until the correct molecular pattern was chosen. Before the advent of the electronic computer the complete analysis of a single X-ray photograph of a simple molecule could take up to three years. The job can now be completed in a matter of hours on a high speed computer. This technique has now been applied, with spectacular results, to the study of living substances. Computers are also widely used in linguistic research, for language translation, analysing texts for stylistic criticism

and the determination of authorship. Such techniques have been applied to the study of the twentyone epistles of the New Testament, and the works of Plato to determine, in the case of the epistles, the authorship, and in the case of Plato, the chronology of writings. The application of computers to this field is the more difficult because of the illogical and ambiguous nature of languages and the existence of idiomatic expressions. An amusing example of this difficulty is clear from the story told of the computer that translated the expression "out of sight, out of mind" as "invisible imbecile". Nonetheless the results obtained in this field are quite remarkable.

Press reports have, by the use of such terms as electronic brains, tended to create the impression that computers can think for themselves. This, of course, is not true. Even the most powerful computer is capable of performing only two basic operations, i.e. carrying out sequences of trivial operations such as copying and adding, and choosing between alternative sequences when the need for such a choice has been foreseen. A computer can perform, although extremely rapidly and completely automatically, only those computations which it has been programmed to perform. The capabilities of a computer are determined by the ingenuity of those who design and use it.

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### THE SCIENCE SOCIETY

Barry Moynihan, B.Sc.

The idea was raised last May among P.S.I.P. students. Since then work has been going on to develop a constitution, and gain support from teachers

The main purpose is to promote interest in all branches of science and technology and co-operation between students of different scientific pursuits.

To this end, it is hoped to invite qualified speakers to the meetings and, more importantly, to have students read their own papers. Small research and construction projects are also being planned.

Support for projects has already been forthcoming and two departments have generously promised limited use of their laboratory facilities.

The first and introductory meeting took place on Monday, 3rd October.



## D U T Y      O F F I C E R

The Editor very kindly, I thought, left a typescript on my desk with the comment "You might like to read that at your leisure". After a pleasant, but to me pointless, five minute chat he took his leave with the parting crack that he expected not more than a full page from me for the next edition of the Grapevine. Unfortunately the editors document was overlooked in the daily routine and only discovered when the Sub-Editor demanded indignantly if I intended to delay much longer with the "promised" article (As they say *Italics mine*). Further comments to the effect that I should be giving good example to other authors, that I had buckets to write about, it would only take a few minutes, it was necessary it might be helpful, it was urgent, left me somewhat dubiously embarrassed and with the feeling that somehow or other I had been outmanoeuvred or at least out-talked. (The Sub-editors extension developed a most unusual fault, a highly selective personal reaction to certain incoming calls which I understand persists until publication date).

In seeking a topic I found that there are many on which I would like to write sometime in the Grapevine, but not now. Instead with the editors permission may I make a few comments on a number of widely divergent points.

Part of the duties of a Principal is to ensure that the teaching staff are doing their job competently. This involves questions not alone of time-keeping, class discipline, methods of teaching and so on, but also questions as to his effective utilisation, observance of the Committee's regulations and the dictates of the Department, to name but a few. In this building, due to its size and the complexity of the work it is not possible at the moment for the Principal to devote the time needed to this essential task. Also from bitter experience the need for a Senior Staff member to be on duty at all times has been amply demonstrated in the past in a much smaller establishment.



To overcome these difficulties in part and to ensure also that Departments be aware of the problems existing in other Departments, the Departmental Heads, each in turn on a rota system, deputise for the Principal. A condition of the terms of appointment of a Departmental Head requires that he "should as directed by the Principal or Chief Executive Officer act as a representative or deputy for the Principal". The advantages to all concerned are obvious. The idea that any one Department is less favoured than another is placed in its proper perspective and the problems of the one are found to be joint problems. If I may misquote "No Department is an island" and only by an unselfish approach by all sectors of the College can we achieve the aims for which we strive.

It is possible that the signing of the register cover by the Duty Officer has been misconstrued as some dark and devilish plan to discredit the teacher. This I would hasten to add is anything but true. Just as a member of the Inspectorial Staff of the Department of Education appends his signature on the Register Cover to indicate to the Chief Executive Officer and the Department that he is executing his duty so also the Duty Officer for my information. I wonder how many of us can remember a real inspection? Ugh!! Did you know that any Committee Member may make a visit of inspection without formal prior notice? Some of us have suffered from such a visit. Suffer being the operative word.

To sum up, the Duty Officer is deputising for the Principal. He is the individual in charge in the absence of the Principal and Vice-Principal. He is there primarily to help the teaching staff. His job is even less pleasant than the Principals or yours. His responsibility is a big one and an added burden for him. Help him to help you and me. He is there to counsel and advise you.

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Further comments overleaf:  
(Ed.)

I have read that:-

Educational control seems to be just as much a problem in England as in Ireland and to judge from the comments made by some people in Technical Education its solution is beset with many thorny problems. I particularly liked the comment that "It is not possible that the machinery of control of Colleges of Further Education remains unknown to the professional politician."

"There are two chief sources of opposition to General Studies Courses, one is the students themselves who feel that they are an unnecessary appendage on to their already overcrowded time-table, the other is the lecturers of other departments who think that General Studies destroy the morale and singlemindedness of a vocationally orientated student whose work and self discipline are likely to suffer from exposure to new ideas." (Tech.Ed. & Ind.Training Vol. 8 page 496). My impression - there is only one source of opposition and it is not the students.

Maybe we could have some letters from the teaching staff giving their views.

Via Grapevine:

The appointment of a Physical Educationist and of a Swimming Instructor to take over the PE unit early in the New Year. Agreed by Vocational Education Committee.

Has been suggested that a Swimming Club could be formed for the Staff and pool made available on Saturday mornings. Club subscription would cover expenses of porter etc. Membership might extend to members of staff's family. Membership Kevin Street only or VEC? Lets hear your views.

PRINCIPAL

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## An Innocent Abroad

Each Summer since 1959 there has been an annual trip by Irish Teachers to America. This project is organised by Stephen Daly, N.T. The basic idea of the Project is to provide Irish Teachers - Primary, Secondary and Vocational with a low cost opportunity of studying U.S. Educational Techniques specifically and the American way of life generally.

This year there was a choice between a six weeks and a three weeks stay and twenty-one teachers were chosen for each out of a total of nearly five hundred applicants. For those on the six weeks' visit there was a three weeks' course at a university college, a two weeks' coach tour, with one unscheduled week. Those on the three weeks trip joined the others at the college.

The course was conducted at the State University College, New Paltz, Ulster County, New York. The College is located in the mid-Hudson region of New York State, approximately 70 miles north of New York City and 70 miles south of the state capital at Albany. Established in 1828, the College was incorporated in 1948, together with thirty-one public institutions of higher learning, into the new State University of N.Y. It is a multi purpose institution covering 100 acres with over 3,000 undergraduates studying liberal arts and teacher education programmes.

The Irish group were accommodated at one of the College dormitories called "Bliss Hall". Each teacher had a separate room - ladies in one wing, gents in another. There are several lounges - with a piano in one, an air conditioned classroom, where all the lectures were held, launderette facilities and, to help over any other wants or difficulties, there was an office staff and a resident nurse.

The following are the titles of some of the lectures, delivered mainly by visiting experts: "The Face of America" "The Civil Rights Movement" (this by a Negro), "Teaching Foreign Languages", "Critical Issues in American Education", "Education on the State and local level", "The Comprehensive Junior - Senior High School". These sessions were generally about two-three hours duration and were followed by discussions. Visits were arranged to a variety of educational institutions and it was possible to talk freely with teachers and students about the conditions they experienced.

Other trips included Stratford, Connecticut, for a performance of "Twelfth Night", Radio City Music Hall, Yankee Stadium, The United Nations, and Albany.

Sporting facilities at the college included swimming, tennis, bowling, hiking, golf. At weekends the group adjourned to the College Camp located about forty miles away, in the Catskill Mountains where, in addition to the above, one had also a choice of horse riding, rowing and canoeing. Films and concerts of various types could be enjoyed both at the College and at the camp. Alcohol in any form was absolutely forbidden on the campus. It is difficult, at this juncture, to refrain from casually mentioning that one was allowed import to the U.S. five quarts of tax-free spirits. Apart from the "laid-on" recreation, the teachers had their own inimitable Irish way of passing the occasional free evening. I believe these were very enjoyable evenings!

A most pleasant feature of the stay at New Paltz was the spate of invitations from local residents and college staff to visit their homes for dinner. This experience is necessary to appreciate the overwhelming hospitality of the ordinary American - the atmosphere on these occasions was always warm, casual and thoroughly enjoyable.

The two-week tour started in New York, then on to Philadelphia, Lancaster, Harrisburg, Gettysburg, York Town, Jamestown, Williamsburg, Washington and back to New York.

The cost to the individual of this six weeks U.S. visit varied a lot. One paid the charter flight return fare, the subsidies covered all expenses at the college and the hire of the tour coach. There was a grant of \$ 124 towards the cost of accommodation on the tour. Motels charged about five dollars per night and a reasonable dinner cost in the region of two dollars.

This very briefly is an account of the 1966 Irish Teacher Project. Further details I am sure can be had from Stephen Daly, P.O. Box 303, Rathmines, Dublin 6.

F. M. B.

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A Staff Member suggests placing a speed limit notice applicable to all traffic in the College precincts.

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The \$64,000 question of the moment - When are the lockers in the Staff Room going into use?



M. J. Sheehy

Few things in life are more important than developing that life-time career pattern in which an individual will enjoy the greatest degree of self-realisation and self-fulfilment. To help the individual to help himself on the road to attaining these levels of self development through self-understanding is the aim of our vocational guidance services.

Vocational guidance is the process of helping a person to develop and accept an integrated and adequate picture of himself and of his role in the world of work, to test his concept against reality and to convert it into a reality, with satisfaction to himself and benefit to society.

The vocational guidance teacher helps the student to develop a realistic self-concept, helps him to discover his assets so as to capitalise on them, to be aware of his remediable limitations so that he may set about a programme of improvement and to recognise his irremediable deficiencies and learn to live contentedly with them. The student is helped to develop correct ideals, a true value system, an appropriate level of aspiration and to make his own decisions.

Studies of the vocational aspirations of youth in relation to their abilities and to the opportunities open to them have shown that many students have not the self-understanding that is necessary for good vocational adjustment. Vocational guidance spotlights attention on the information about self and occupations that is needed for good vocational adjustment and to guide the development of a genuine understanding and acceptance of these facts. Vocational guidance is, therefore, a dual process of helping the individual to understand and accept himself and to understand and adjust to society.

Each individual has, within himself, the resources necessary to the solution of his own problems. He needs a suitable atmosphere to set his resources functioning towards a knowledge of himself and the utilization of that knowledge to solve his own problems. Many emotionally well adjusted students solve their own problems without any formal assistance. Others with vocational and educational problems require help. Guidance is frequently concerned with these real problems of choosing a job or selecting a school or course; it stresses factors such as abilities, achievements, aptitudes, level of attainment, expressed and latent interests, hobbies and other free time activities, motives, level of aspiration, job requirements, and vocational development. Many of these factors are discussed in one or more interviews which the student with a problem has with the vocational guidance teacher but in every case it is the student/



who makes the plans. He receives information and assistance in the process of vocational guidance and these help him to make his own decisions. Some of the information which the student gets comes from aptitude and ability tests. These tests are only some of the sources of information which are used but they are not such that they dictate procedure to a student. Some of these tests are measures of attainment and, if due consideration is given to relevant circumstances, they can be indicators of ability.

Psychological testing, as such, is only a part of vocational guidance. In this College certain psychological tests, whose validity has been determined in the original sample, by using thousands of students, are used to select students at entry. Other tests are applied so as to accumulate scores in an effort to establish norms in due course. At present those students who enter the College and still have an educational or vocational problem have at their service the vocational guidance teacher. Through him they can, if necessary, be referred to the Psychologists of the City of Dublin Vocational Education Committee.

## The Anatomy of the Class Register

At this relatively early point in the session it seems untimely to include a note on the significance of the Class Register. All teachers are familiar with the chore of adding, compiling and (confidentially) devising a presentable register in the languid heat of mid-June. This panic measure can easily be avoided by attention to the Register on a systematic basis throughout the year. As yet there is no hint of the use of using the Computer in the compilation of Registers.

The Class Register is the link between the teaching and Administrative sections of the College. Administration welcomes a legible record of receipt numbers together with the daily and annual totals of student attendances and Teachers' Hours. The teacher personally profits from a weekly recording of his teaching material. In addition it is well to note that the class register is open to the inspection of the C.E.O. and Department Personnel. An unclear situation emerges when the name of any other person appears in the column "Do'n Priomh-Oifigeach no Baill an Choiste". Is the teacher then free to erase the signature? Or should he with Brutus reflect

"The abuse of greatness is, when it disjoins remorse from power".....

(For comment see Principal's Column)



What "they" think of us

"Whether one considers the benefit of the individual pupil or collective interest of society, there is no escaping the fact that the quality of education always has been and always will be directly linked with the quality of the teacher"

.....

"I really can't understand why people expect so much of teachers. They're usually the least courageous, the most conformist, the most boring people God ever created. People talk of giving them a pay rise as if it was an Educational Revolution".

.....

"Teachers are often told - especially when they are meeting together - that theirs is the noblest of all professions."

.....

"Recruiting and training enough teachers, giving them the work best suited to their aptitudes and tastes, providing the salary, working conditions and career prospects which will both enable and encourage them to devote themselves wholeheartedly to their work - these are not simply the answers to equitable demands; they are also the soundest way to meet a nation's needs. This is just as much a matter of good management as of equitable social organization."

.....

"In a world of constant change where newspapers articles and T.V. programmes make engineers, research workers, doctors and surgeons appear as pioneers, the teacher has practically come to be considered as a survivor from a bygone age"

(A few comments from recent publications on the teaching profession. Again we invite your written comment.

The Editors).



DONT Forget!

## 2nd Annual Staff Dinner-Dance

6<sup>th</sup> Jan 1967      8pm-2am

in

Central Hotel      Wicklow St

Tickets      37/6

If you have already booked but not paid in full

please pay balance as early as possible but

NOT LATER THAN 7th DECEMBER 1966

Committee  
Dance Secretary